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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,775	02/09/2004	Yun-Hwan Kim	8836-217 (IB12294-US)	8837

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EXAMINER

PEIKARI, BEHZAD

ART UNIT	PAPER NUMBER
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2189

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/774,775	Applicant(s) KIM ET AL.	
	Examiner B. James Peikari	Art Unit 2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- This Office action is responsive to the amendment filed on November 9, 2006.
The finality of the previous Office action is hereby withdrawn.

Election/Restrictions

1. Claims 21 and 25, newly submitted or amended on June 30, 2006 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the new language "wherein the X-data field and the Y-data field overlap, and wherein an area of overlap is the microprocessor data field" would require additional search and consideration beyond that given in the first Office action.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 21 and 25 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings are objected to because the view numbers are not in accordance with 37 CFR 1.84(u)(1). For Example, "FIG. 1" should replace "Fig. 1", etc. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). There is no

Art Unit: 2189

antecedent basis given for the language “a coprocessor for storing data managed by the processor”, which appears in each of the independent claims 1, 5, 9 and 17.

5. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

6. Claims 1-20 and 22-24 are objected to because of the following informalities: the language “a coprocessor for storing data managed by the processor” in each of independent claims 1, 5, 9 and 17 is confusing because the claims also include at least one memory which serves this same function. Note the “microprocessor data cache for storing data managed by the processor”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The previous rejection under 35 USC § 112 is withdrawn due to the remarks filed on November 9, 2006.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chauvel et al. (US Patent 6,369,855 B1), hereinafter simply Chauvel in view of Sussman et al. (US Patent 5,686,960), hereinafter simply Sussman.

Regarding claim 1, 5, 9 and 17, Chauvel teaches a computer system comprising:

- a system bus (column 6, lines 10-11; column 9, lines 30-32);
- a host processor for receiving, decoding, and executing an instruction (column 5, lines 26-28);
- an arbiter for controlling priorities for system bus access (column 21, lines 14-19);
- a data processing unit for performing a digital signal processing operation subject to the host processor (column 23, lines 17-19); and
- an external memory for storing data managed by the data processing unit (column 9, lines 60-66);

wherein the data processing unit comprises:

Art Unit: 2189

a microprocessor for fetching and executing an instruction (column 5, lines 26-28);

a coprocessor for storing data managed by the microprocessor (column 12, lines 29-31);

Chauvel fails to teach (1) a microprocessor data cache for storing data managed by the microprocessor and (2) an X-data cache and a Y-data cache that stores first and second groups of data for the coprocessor. However,

(1) A data cache managed by microprocessor is an obvious feature that is well known in the computer art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a cache for the microprocessor since this would have given the microprocessor the well known benefits of cache memory, i.e., faster access to data.

(2) Sussman teaches an X-data cache and a Y-data cache (Fig. 30, X cache 608, Y cache 614; column 33, lines 28-34), which store X-data and Y-data, respectively, for the coprocessor (note the image processor 70, in particular, the processor of personal computer 76) wherein the coprocessor manages data of a microprocessor (note control means 80, which may be a microprocessor separate from image processor 70; see column 7, lines 51-54). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the Sussman caches into the system of Chauvel, since this would have provided an efficient

processing of data (especially image data) and, as noted above, accessing data from caches is faster than accessing from the main memory.

Regarding claims 2, 16, 14 and 22, Chauvel teaches a data processing device, wherein the microprocessor conducts arithmetic operations for integers and floating points, and Boolean functions (this is an obvious feature that is well known in the art, especially the art of graphics processing).

Regarding claims 3, 7, 15 and 23, Chauvel teaches a data processing device, wherein the coprocessor executes a digital signal processor function operable with at least one of video, audio, video capture and play-back, telephone communication, voice identification and synthesis, and multimedia communication (column 5, lines 23-39; column 34, lines 58-67; column 35, lines 15-42).

Regarding claims 4, 8, 16 and 24, Chauvel teaches a data processing device, wherein the digital signal processor function is micro-coded with at least one of finite impulse response and infinite impulse response filters, a Fourier transform, a correlation function, a matrix multiplication, and a Taylor series function (column 3, lines 57-67; column 4, lines 1-59; Chauvel discloses a matrices).

Art Unit: 2189

Regarding claims 10 and 18, Chauvel teaches a computer system, further comprising a slave in accordance with a need of a user (column 16, lines 28-33; column 60, lines 16-29).

Regarding claims 11 and 19, Chauvel teaches computer system, wherein the slave comprises at least one of a storage extension module, a video control extension module, a multimedia extension module, and a communication extension module (column 5, lines 23-39; column 34, lines 58-67; column 34, lines 15-42; column 60, lines 16-29).

Regarding claims 12 and 20, Chauvel teaches a computer system, further comprising a decoder for addressing the data processing unit and the slave (column 5, lines 40-43).

Regarding claim 13, Chauvel and Sussman teaches a computer system, wherein the external memory comprises:

a microprocessor data field for storing data to and/or from the microprocessor data cache (A data cache managed by microprocessor is an obvious feature that is well known in the computer art);

an X-data field for storing to and/or from the X-data cache; and

a Y-data field for storing to and/or from the Y-data cache (Fig. 30, X cache 608, Y cache 614; column 33, lines 28-34).

Response to Arguments

10. Applicant's arguments filed November 9, 2006 have been fully considered but they are not persuasive.

(A) These arguments are moot in view of the revisions presented above.

(B) Applicant's comment, "manages data of another processor" on page 9, line 18, of the remarks is not commensurate in scope with the claims.

(C) With regard to the dependent claims, applicant's remarks indicate that they should be allowable because the independent claims are allowable. Since applicant has not rebutted any of the rejections directed to the particular features of these claims, these claims are deemed to stand or fall with the independent claims. Consequently, the present examiner has maintained these rejections as presented in the previous Office action.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Peikari whose telephone number is (571) 272-4185. The examiner is generally available between 7:00 am and 7:30 pm, EST, Monday through Wednesday, and between 5:30 am and 4:00 pm on Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon, can be reached at (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center at 866-217-9197 (toll-free).



B. James Peikari
Primary Examiner
Art Unit 2189
11/23/06